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# CURRENT LITERATURE IN AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE  
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WASHINGTON, D. C.

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January, 1938.

## Accidents.

Causes of farm accidents. Northwest Farm Equipment Journal. v. 51, no. 12. December, 1937. p. 48. Survey recently made in Kansas showed that every year there is a serious accident to each  $62\frac{1}{2}$  farms; that in every thousand of farm population annual death rate from accident is .144, and permanent disability .271. To put it a little more clearly, of each seven thousand members of farm families, one is killed every year, and of each 4,000, one is disabled for life. Analysis of precise causes of farm accidents shows that 38 per cent arise from machinery,  $26\frac{1}{2}$  percent from livestock.

Farm accident primer and rules governing county and state safety contests. Presenting a program for farm safety in Kansas. Prepared by the Farm accident committee, State safety council. Topeka, Kansas. Kansas state printing plant, 1937. 31p.

Watch your step! The farm can be a dangerous place. By J.E. Stanford. Southern Agriculturist. v. 67, no. 8. August, 1937. p. 8.

## Accounting.

Cost accounting. Compiled by Florence A. Armstrong. Washington, D.C. Department of Commerce, Bureau of Foreign and Domestic Commerce, Marketing service section, 1937. 8p. Mimeographed.

## Agricultural Engineering.

Report of the Chief of the Bureau of Agricultural Engineering, 1937. By S.H. McCrory. Washington, U.S. Govt. print. off., 1937. 24p.

Winter meeting of the agricultural engineers. Farm Implement News. v. 58, no. 25. December 16, 1937. p. 22, 27-29.

## Agriculture.

Annual report of the Maine extension service for the year ending June 30, 1937. Orono, Maine, 1937. 40p. University of Maine. College of agriculture. Extension service. Bulletin no. 244.

Farm prices and costs in Michigan. By Orion Ulrey. Michigan state college. Agricultural experiment station. Quarterly bulletin. v. 20, no. 2. November, 1937. p. 93-113. Purpose of study is to bring statistical description of Michigan farm prices and costs up to date, to make corrections and additions to original indexes of prices and costs and to describe briefly changes in farm price situation since 1929.



## Agriculture.

- Interdependence of agriculture and industry. By P.H. Bollinger. Agricultural Situation. v. 21, no. 12. December 1, 1937. p.15-18. Farm prices and income usually fluctuate more violently than general prices and national income. Therefore, the uncertain outlook for immediate future is of particular concern to farmer and those co-operating with him in attempt to prevent such sudden shifts in prices and income as will act as unsettling influence in entire economic situation.
- New farming systems applied to Southwest Missouri upland farms. By Donald B. Ibach. Columbia, Missouri, 1937. 18p. University of Missouri. College of Agriculture. Agricultural extension service. Circular 370.
- November crop estimates. Farm Implement News. v. 58, no. 23. November 18, 1937. p. 25. According to official crop report for November, developments of past month warranted increase of more than 89,000,000 bushels in forecast for corn, making latest estimate 2,651,393,000 bushels and yield per acre 27.6 bushels. Total is 97,000,000 bushels above five-year average. Table shows 1937 corn forecast and five year averages for states in which the five year average was in excess of 40,000,000 bushels.
- References on agricultural history as a field for research. By Everett E. Edwards. Washington, D.C., 1937. 4lp. Mimeographed. United States Department of Agriculture. Library. Bibliographical contributions. no. 32.
- Report of the Kansas state board of agriculture devoted to Kansas statistics. Report for December, 1936. Topeka, Kansas. Kansas state board of agriculture, 1937. 125p.

## Air Conditioning.

- Residence and small-office air conditioning. By G.B. Helmrigh. Mechanical Engineering. v. 59, no. 10. October, 1937. p. 743-748.

## Assessment.

- Good five cent farm plats. By Herbert Pike. Journal of American Society of Farm Managers and Rural Appraisers. v. 1, no. 2. October, 1937. p. 54-56. Aids in farm appraisals.
- Valuation of barns. By Rex R. Bailey. Journal of American Society of Farm Managers and Rural Appraisers. v. 1, no. 2. October, 1937. p. 67-72, 86.

## Building Construction.

- Background of the new architecture. By Dr. Walter Gropius. Civil Engineering. v. 7, no. 12. December, 1937. p. 839-842. Both technical and cultural qualities required in modern work.



Building Construction. (Cont'd)

Build what you can and then add on. Seattle, Washington, 1937. 6 p.  
West coast lumbermen's association. Information department.  
Radio talk no. 8. Mimeographed.

Building Materials.

Glass block solves light problem on farm. By Earl Aiken. Lumber  
and Building Material Dealer. v. 6, no. 10. October, 1937.  
p. 2-3, 18.

Tile specifications for house construction. Lansdale, Pennsylvania,  
American-Franklin-Olean Tiles, n.d. 90p. Booklet no. 100.

Camps.

Act to regulate the construction and maintenance of auto camps in un-  
incorporated areas. Department of Industrial relations. Division  
of Immigration and Housing of California. Sacramento, California  
state printing office, 1937. 14p.

Cold Storage Plants..

Cold storage of pecans. By C.T. Baker. Refrigerating Engineering.  
v. 35, no. 1. January, 1938. p. 28, 48, 49.

Cold storage of plums, prunes and apricots. By Willis J. Williams.  
Refrigeration, Cold Storage and Air-conditioning. v. 8, no. 4.  
July 31, 1937. p. 25, 27.

Cold storage studies of Florida citrus fruits. III. Relation of storage  
atmosphere to the keeping quality of citrus fruit in cold storage.  
By Arthur L. Stahl and John C. Cain. Gainesville, Florida, 1937.  
44p. University of Florida. Agricultural experiment station.  
Bulletin 316.

Freezing temperatures of some fruits, vegetables, and florists' stocks.  
By R.C. Wright. Washington, U.S. Govt. print. off., 1937. 10p.  
United States Department of Agriculture. Circular no. 447.

Frozen food industry - its relation to cold storage plant operation.  
By Richard Poole. Ice & Refrigeration. v. 94, no. 1. January,  
1938. p. 34. Discussion of process of quick-freezing, its effect  
upon plant cells and tissues. Storage in refrigerated warehouses.

Quick freezing foods - economic status as applied to freezing methods  
and apparatus design. By William J. Finnegan. Ice & Refrigeration.  
v. 94, no. 1. January, 1938. p. 45-48. Discussion of process of  
quick freezing as related to other factors. More efficient, econom-  
ical and adequate facilities are needed. Technological, mechanical  
and economic problems are being solved.



Cotton.

Mellon Institute research fellows begin survey of industrial processes of cotton. Cotton and Cotton Oil Press. v. 38, no. 41. October 9, 1937. p. 9. In visits to cottonseed oil mills, each process of conversion brought numerous questions from Foundation visitors for future reference in their researches. Particular interest was shown in extractions of cottonseed oil, and possibility of converting them into industrial uses. Tensile strength of cotton cloth in finishing plants and use of bagging in compresses were other phases of interest.

Cotton Machinery.

I.H. C. president discusses mechanical pickers. Farm Machinery and Equipment. no. 1847. November 15, 1937. p. 9, 38. Industry conscious of the social and economic implications of mechanical cotton tools.

Machine picking - and then? Arizona Producer. v. 16, no. 16. November 1, 1937. p. 6. Its effect on labor, on cotton growing industry and farming in general.

Rust Brothers change original plan to lease cotton-pickers. Science News Letter. v. 32, no. 871. December 18, 1937. p. 397. With two competing pickers on market, no leasing scheme would be workable. Unusual interest has been attached to development of successful cotton-picker, because its widespread use would directly result in profound disturbances to labor market throughout South. Cotton picking is virtually entirely hand operation, employing hundreds of thousands of men and women for forty days a year. Even though use of machine may not mean permanent unemployment for farmhands and share-croppers, it will mean temporary displacement of uncomfortable dimensions. Realizing this Rust Brothers, John D. and Mack D., at first proposed to limit its use in United States so as to minimize its effects. They also turned patents on their device over to Rust Foundation, a non-profit corporation which will receive lion's share of profits and will devote them toward educational and cooperative development purposes. That part of plan, they declare, has not been changed.

Dairy Farm Equipment.

Milk bottle washer that dairymen like. By Hobert Beresford. Electricity on the Farm. v. 11, no. 1. January, 1938. p. 20. Sketch shows details of assembling bottle washer.

Relation of stable environment to milk production. By M.A.R. Kelley and I.W. Rupel. Washington, U.S. Govt. print. off., 1937. 60p. United States Department of Agriculture. Technical bulletin no. 591.

Some advantages of mechanical milking. Rural Electrification & Electro Farming. v. 13, no. 149. October, 1937. p. 52-53.



### Dams.

Grand Coulee high dam. Engineering News-Record. v. 119, no. 26. December 23, 1937. p. 1021-1024. Plans for completion reveal staggering proportions of world's greatest concrete structure being built on the Columbia River in Washington.

Seepage through dams. By Arthur Casagrande. Journal of the New England Water Works Association. v. 51, no. 2. June, 1937. p. 131-172.

### Diesel Engines.

Cletrac's new small Diesels. Farm Implement News. v. 58, no. 26. December 30, 1937. p. 28-29.

Diesel engines recent applications to refrigeration work. By W.C. Burgy. Ice & Refrigeration. v. 94, no. 1. January, 1938. p. 35-36. Importance of power in refrigeration work. Description of two outstanding installations using Diesel power.

### Dynamometers.

Investigation of a simple form of hydraulic dynamometer. By E.P. Culver. Mechanical Engineering. v. 59, no. 10. October, 1937. p. 749-753.

Simple low-cost drawbar dynamometer. By Andy T. Hendrix. Agricultural Engineering. v. 18, no. 12. December, 1937. p. 544, 546. Project was proposed at University of Tennessee in Spring of 1936. Characteristics considered most essential were: 1. Ease of application to almost any type of farm implement. 2. Light weight, simple construction, and durability. 3. Sufficiently sturdy in construction to withstand loads of 4,000 pounds or more, combined with sufficient sensitivity to register small variations in load. 4. Small size, with short coupling space. 5. Adaptability to either direct reading or recording. 6. Low cost of construction.

### Electric Services, Rural

Cheaper rural supplies. By R.F. Markham and C. Eric Stewart. Electrical Times. v. 92, no. 2398. October 7, 1937. p. 457-459. Practical example of how recently modified regulations of the Electricity commissioners reduce overhead line costs.

### Electric Wiring.

Do you want good safe wiring at reasonable cost? By Morris H. Lloyd. Electricity on the Farm. v. 11, no. 1. January, 1938. p. 10-13.

### Electricity-Distribution.

Electric light and power industry in 1937. By C.W. Kellogg. New York, Edison Electric Institute, 1938. 3p. Mimeographed.



Electricity-Distribution. (Cont'd)

Placing TVA power in reach of the farmer. By John E. Rankin.  
Southern Agriculturist. v. 67, no. 7. July, 1937. p. 7.

Preliminary statistics for the Electric light and power industry in 1937. Supplement to Statistical Bulletin no. 4. New York, Statistical department, Edison Electric Institute, 1937. Mimeographed 17p. Publication no. E-2. January, 1937. On basis of 10 months actual and 2 months estimated and final operating statistics for 1936.

Electricity in the Home.

Development of low cost electric cooking equipment. By P.B. Potter, Frances Hicks Bass, and S.M. Beane. Blacksburg, Virginia, 1937. 35p. Virginia Polytechnic institute. Agricultural experiment station. Bulletin 310.

Evaluation of certain factors affecting the cost of using utensils on electric heating units. Orono, Maine, 1937. 155p. Bibliography. University of Maine. Agricultural experiment station, 1937. Bulletin 386.

Electricity on the Farm.

Electric motor driven cultivator used by Michigan florist. By F.M. Mason. C.R.E.A. News Letter. no. 16. November, 1937. p. 16-17.

Electrical appliances and farm machinery. By Frank H. Slade. Rural Electrification. v. 13, no. 150. November, 1937. p. 92-93.  
Grass drying. New rotary grass drier.

Electricity and the farmer of Nebraska. By George M. Dobry. Nebraska Farmer. v. 79, no. 23. November 20, 1937. p. 3, 28, 36.

Electricity in fruit farm operation. By W.C. Reed. Agricultural Engineering. v. 18, no. 11. p. 502, 526.

Electricity on dairy farms. Pennsylvania Farmer. v. 117, no. 12. December 4, 1937. p. 14.

Engineering analysis of electric uses on 182 farms. By E.A. White and J.P. Schaenzer. C.R.E.A. News Letter. no. 16. November, 1937. p. 3-16.

Mixer for hen and cow kitchens. By H.J. Gallagher. Electricity on the Farm. v. 10, no. 11. November, 1937. p. 13-14.

Use of electricity in fruit farm operation. By W.C. Reed. Rural Electrification News. v. 3, no. 3. November, 1937. p. 14-15.



## Engineering.

Architect and engineer. By Aymar Embury II. Civil Engineering. v. 8, no. 1. January, 1938. p. 3-4. Engineers and architects are fundamentally practicing same art, and their partnership should begin at very inception of every job, so that structural and esthetic aspects of each particular design may be worked out together.

The Library as an engineering tool. By Gregory M. Dexter. Mechanical Engineering. v. 59, no. 11. November, 1937. p. 845-849.

Report of income and earnings in engineering profession. Engineering News-Record. v. 119, no. 20. November 11, 1937. p. 789-790. Results of Government questionnaire answered by over 52,000 engineers.

## Engines.

Winter gas engine troubles. By Forrest Wright. American Agriculturist. v. 134, no. 23. November 6, 1937. p. 3, 13. To avoid hard starting and loss of power during winter months make following checks on engine. 1. Test for loss of compression. 2. Inspect bearings and other parts for looseness and wear. 3. Flush oiling system and re-fill with light oil. 4. Clean out fuel system to remove sediment and water. 5. Clean out cooling system and inspect for leaks, particularly if anti-freeze solution is to be used this winter. 6. Clean engine thoroughly by washing with gasoline. 7. Check timing of valves and ignition. 8. Check spark at spark plug. 9. Adjust carbureter for winter running.

Winter gas engine troubles. By Forrest Wright. American Agriculturist. v. 134, no. 24. November 20, 1937. p. 6. Grinding valves.

## Erosion Control.

Contour furrows constructed without loss of sod. By Merle W. Bloom. Soil Conservation. v. 3, no. 4. October, 1937. p. 105-106.

Handbook of erosion control engineering on the National Forests. Prepared by Division of Engineering. Washington, U.S. Govt. print. off., 1936. 89p. United States Department of Agriculture. Forest Service.

New type brush revetment. By Arthur G. Trudeau. Engineering News-Record. v. 119, no. 19. November 4, 1937. p. 759-761. Anchor posts on slope and concrete-cored fascines are novelties of brush revetment being used for bank protection on western Washington rivers. Successive steps involved in placing revetment on graded bank are these: 1. Willow stakes 3 feet long are driven into slope in rows 4 to 6 feet apart parallel to bank, leaving 14 inches projecting above finished slope surface; stakes in each row are 6 feet apart. 2. With stakes in place a 3/8ths inch galvanized wire cable is laid along each row parallel to bank. 3. Construction of mat ordinarily proceeds from upstream end of revetment. 4. With brush in place



## Erosion Control. (Cont'd)

on slope 3/8ths inch cables are stretched over it parallel to bottom cables, and mat then is compressed by releasing wires previously fastened temporarily to tops of stakes, and using them to draw the upper and lower cables together. 5. Facines along underwater toe of mat are each built continuous for entire length of revetment. 6. Final step in completing revetment is to provide necessary weights to offset buoyancy.

Selected bibliography on erosion and silt movement. By Gordon R. Williams and others. Washington, Govt. print. off., 1937. 91p. United States Department of the Interior. Geological survey. Water-supply paper 797.

"Spread row" system for laying off rows. By B.L. Taylor. Soil Conservation. v. 3, no. 4. October, 1937. p. 108-111.

Wildlife conservation through erosion control in the Piedmont. By Ross O. Stevens. Washington, U.S. Govt. print. off., 1937. 26p. U.S. Department of Agriculture. Farmers' bulletin no. 1788.

## Evaporation.

Evaporation and conduction losses from reservoirs and canals in Utah. Prepared by Henry R. Watson. Salt Lake City, Utah. n.d. 19p. Typewritten.

## Farm Buildings.

Keep manure piles wet. By R.L. Cock. Michigan Farmer. v. 189, no. 5. p. 23, 29. Gives plan of covered manure pit.

Organization for promotion of better farm building. By K.J.T. Ekblaw. Agricultural Engineering. v. 18, no. 12.

December, 1937. p. 545-546.

Suggests getting together representatives of all who are interested in better farm buildings. Include farmers who recognize value of well-planned, well-constructed buildings; college instructors who teach how and why of better buildings to their students; extension men who advise farmers in regard to their buildings; dealers who sell materials, and producers and mass sellers of building materials and equipment.

Pole barns and log houses. Seattle, Wash., 1937. 6p. West Coast Lumbermen's Association. Information department. Radio talk no. 9. Mimeographed.

## Farm Income.

Farmers' 1937 cash income by States. Farm Implement News. v. 58, no. 26. December 30, 1937. p. 21.



Farm Labor.

Farm security. By A.G. Black. Agricultural Situation. v. 21, no.11. November 1, 1937. p. 15-16. VII. The farm laborer.

Labor input on West Virginia farms. By L.F. Herrmann, R.O. Stelzer, and W.W. Armentrout. Morgantown, West Virginia, 1937. 12p. West Virginia University. College of Agriculture. Agricultural experiment station. Bulletin 286.

Farm Machinery and Equipment.

Agricultural implement industry. Hoard's Dairyman. v. 82, no. 19. October 10, 1937. p. 531, 551.

Astonishing speed has been made in farm machinery progress. By Frank A Meckel. Missouri Ruralist. v. 78, no. 23. November 13, 1937. p. 11, 27.

Celery production in Michigan. East Lansing, Mich., 1938. 43p. Michigan state college. Agricultural experiment station. Circular bulletin 165.

Cobbing the corn crop. By E.W. Lehmann. Electricity on the Farm. v. 10, no. 12. December, 1937. p. 12-13. Sheller of 100 to 150 bushels hour capacity driven by 5 horsepower electric motor will make it possible for corn grower to take advantage of favorable weather, labor and marketing conditions.

"Damming" or "Basin-Lister" in Dakota. Dakota-Farmer. v. 57, no.21. October 9, 1937. p. 534-535. Results secured during past year.

Davis reports great progress in industry. Implement Record. v. 34, no. 11. November, 1937. p. 20-21.

Device for separating hulled from unhulled walnuts. By E.M. Chace. C.R.E.A. News Letter. no. 16. November, 1937. p. 24-25.

Domestic farm equipment sales at new peak. Implement Record. v. 34, no. 11. November, 1937. p. 17. Dun & Bradstreet estimate production up 25 per cent from 1936 to all-time high.

Farm power, inc. By Grif McKay. Farm Journal. v. 61, no. 11. November, 1937. p. 22, 73.

14-inch deep-furrow wheat drill tests. By L. E. Thatcher and R.D. Lewis. Bimonthly bulletin, Ohio Agricultural Experiment Station. v. 22, no. 189. November-December, 1937. p. 157-163.

How Russia is carrying out farm mechanization. Implement & Machinery Review. v. 63, no. 751. November 1, 1937. p. 648.

Farm Machinery & Equipment. (Cont'd)

- Intangibles of the implement industry. By Sydned G. McAllister.  
Farm Implement News. v. 58, no. 22. November 4, 1937. p. 34-35.
- Machine and the farm. By Frank H. Slade. Rural Electrification & Electro-farming. v. 13, no. 148. September, 1937. p. 35-36.  
Cooperation of farmer and engineer increases yields.
- Machine and the farm. By Frank H. Slade. Rural Electrification and Electro-farming. v. 13, no. 149. p. 60-61.
- Machines keep Hawaiian crop moving. Facts About Sugar. v. 32, no. 10. October, 1937. p. 411-412. Mechanical cane cutters and loaders relieve labor situation but produce new milling problems.
- Machines now do more for family-size farm. Better Farm Equipment and Methods. v. 10, no. 5. January, 1938. p. 6-7. Discussion of Annual Report of U.S. Bureau of Agricultural Engineering.
- Mechanization of agriculture. Fifth selected bibliography. London, Ministry of Agriculture and Fisheries, 1937. 34p. References in the Ministry's Library. Previous bibliographies were issued in October 1932, October 1933, November 1934, and January 1936.
- Mechanizing the sugar beet harvest. Implement and Machinery Review. v. 63, no. 751. November 1, 1937. p. 652-654.
- Modern labor and mechanized agriculture. By Lester J. Holmes. Implement Record. v. 34, no. 11. November, 1937. p. 32, 34.
- Pennsylvania farmers use large amount of modern machinery. By R.U. Blasingame. Pennsylvania Farmer. v. 117, no. 9. October 23, 1937. p. 10.
- Single-blade weeder. Montana Farmer. v. 25, no. 3. October 1, 1937. p. 12. Gives plans, specifications and instructions.
- Sugar beet study of labor and machinery. Farm Implement News. v. 58, no. 25. December 16, 1937. p. 40.
- What's ahead for 1938? Implement and Tractor. v. 52, no. 27. January 8, 1938. p. 16-17. 1938 has possibilities of becoming one of the industry's most promising years. Enough backlog of replacements still exists to constitute two full years of pre-depression average volume.
- World-wide search for a sugar beet harvester.: Editorial. Implement and Machinery Review. v. 63, no. 752. December 1, 1937. p. 756-757. What is required is a machine that will both lift and top roots in one combined operation, and convey beet to an elevator for delivery in uniform collectable heaps, or to following wagon or trailer, with tops themselves subsequently gatherable unsciled for stock-feeding or other object.



## Farm Mechanics.

How to fit a circular saw. By L.M. Roehl. American Agriculturist. v. 134, no. 24. November 20, 1937. p. 3.

How to fit the crosscut saw. By L.M. Roehl. Electricity on the Farm. v. 10, no. 11. November, 1937. p. 16-17.

Montana's rule for hay measurement. By H.E. Murdock. Montana Farmer. v. 25, no. 6. November 15, 1937. p. 5. Volume of any object is obtained width by length by height. Height of hay stack presents slight problem that is overcome by "over" measurement. Hay measurement method outlined and weights of hay are established by Montana statute and apply when no other agreement is made between contracting parties. However, it has been found in experimental trials that much closer estimate to true volume of stack can be obtained by making slight modification of Montana rule. This modification is merely subtracting five-sixths of width from over measurement instead of entire width.

## Feed Grinders and Grinding.

Grain grinding. By N.E. Macpherson. The Bulletin. (Hydro-Electric Power Commission of Ontario.) v. 24, no. 11. November, 1937. p. 347-352. Paper presented before the Convention of the North Atlantic Section of the American Society of Agricultural Engineers at Toronto, October 12, 13 and 14, 1937.

## Fences.

Electric fence a live wire topic. By J.B. McNulty. Agricultural Leaders' Digest. v. 18, no. 7. October, 1937. p. 17-18.

Facts about electric fence. By George W. Kable. Electricity on the Farm. v. 11, no. 1. January, 1938. p. 16.

How to sell woven wire fence and when. By O.A. Brock. Lumber and Building Material Dealer. v. 6, no. 10. October, 1937. p. 10-11.

More and better fences are coming. By H.A. Flueck. Agricultural Leaders' Digest. v. 18, no. 7. October, 1937. p. 16.

## Fertilizer Placement.

Machine placement of fertilizer for cotton. American Fertilizer. v. 87, no. 9. October, 1937. p. 12. Best results were secured when fertilizer was placed 2.5 inches to sides and two or three inches below seed level.

Machine placement of fertilizer for cotton. Fertilizer Review. v. 12, no. 6. November-December, 1937. p. 13. Results show that earliest germination, highest average percentage of seedlings emerging, best final stand of plants and most rapid growth were obtained

### Fertilizer Placement. (Cont'd)

when fertilizer was applied 2.5 inches to sides and 2 inches below seed level. Fertilizer placed within one inch of seed materially delayed germination and emergence of seedlings, thus reducing final stand of plants.

### Fire Protection.

Fire fighters in Ohio farm communities. By W.E. McMunn. Ohio Farmer. v. 180, no. 8. October 9, 1937. p. 3, 29.

Fire-resisting treatment proved in Detroit. Lumber and Building Material Dealer. v. 6, no. 10. October, 1937. p. 12.

Manual of fire-loss prevention of the Federal fire council. Washington, U.S. Govt. print. off., 1934. 156p. U.S. Department of Commerce. National bureau of standards. Handbook no. 19.

Planning, constructing, and operating forest-fire lookout systems in California. By S.B. Shew and others. Washington, U.S. Govt. print. off., 1937. 56p. United States Department of Agriculture. Circular no. 449.

Tragedy at the crossroads. By Ben Hibbs. Country Gentleman. v. 107, no. 9. September, 1937. p. 7-8, 84-85.

### Floods and Flood Control.

Bonnet Carre spillway in the flood of 1937. By William F. Tompkins. Military Engineer. v. 30, no. 169. January-February, 1938. p. 43-47.

Flood in La Canada valley, California January 1, 1934. By Harold C. Troxell and John Q. Peterson. Washington, U.S. Govt. print. off., 1937. 98p. United States Department of the Interior. Geological Survey. Water-supply paper 796-C.

Hydrologic cycle re-examined. By C.W. Thornthwaite. Soil Conservation. v. 3, no. 4. October, 1937. p. 85-91. Suggests novel method of flood control. It would seem that any method of soil conservation or of forestry which would retard run-off in head-waters area of drainage basin would increase evaporation opportunity of water. In this way more of water would be diverted from surface streams into those great invisible atmospheric streams. Any technique which would stimulate additional evaporation of excessive rainfall from land into those atmospheric streams, there to be conducted harmlessly back to seas, would serve as important and supplemental flood protection measure. It should be understood that foregoing flood control suggestions still lie within realm of theory. It is clear that if they were to work they would have tremendous possibilities.

### Flow of Water and Gases.

Ohio stream flow. By C.V. Youngquist. Ohio Engineering Experiment Station News. v. 9, no. 5. December, 1937. p. 19-21. Flood-flow and drainage-area size relation.



## Forage Crops.

Farm experience in forage cutting. By Howard T. Greene. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 448. Farmer today has greater choice of methods of curing forage than in the past, namely: (1) Accepted method of natural field curing; (2) artificial drying of forage, and (3) putting green forage in silos for natural fermentation, with additions of molasses, or by AIV or acid method of forage curing. AIV or acid method has been very satisfactory in our experience, and certainly from point of view of finished product, ranks with artificial drying of hay. Use of AIV silage in dairy herd does result in milk of greatly enhanced color, and undoubtedly a higher vitamin A content, with high potency in newly discovered growth-promoting factor. Points out here need for new machinery to handle crops for forage curing under new method.

Forage crop engineering. By H.<sup>41</sup>. Tucker. Presented before the North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 13, 1937. 9p. Mimeographed.

## Foundations.

Foundation primer. By Jacob Feld. Civil Engineering. v. 8, no. 1. January, 1938. p. 10-14. Guessing, more or less intelligent, has too often been basis for constructing building foundations, particularly in establishing a value for bearing power of soils. Structures of great size, or monumental character have received ample scientific attention, but smaller buildings, to which paper primarily refers, have been founded according to judgment or experience of designer. Presents more rational basis. Treating different materials encountered, points out limitations and peculiarities of each, with practical suggestions for avoiding pitfalls on one hand, and taking advantage of favorable qualities on other. Losses from settlement or failure, are of such magnitude as to justify precautions equal to those required for fire hazards.

## Frost Protection.

Frost prevention in orchards and vineyards. By J.B. Harris. Journal of the Department of Agriculture of South Australia. v. 41, no. 2. September, 1937. p. 129-134. Brief account of some of experiences in South Australia, together with description of type of frost alarm which has been found satisfactory, and instructions for charging and maintenance of type of battery used to operate alarm.

## Hay.

Essentials in making good hay. By L.O. Brackeen. Progressive Farmer. Georgia-Alabama-Florida edition. v. 52, no. 8. August, 1937. p. 36. Machinery, weather, and storage are all important.

Hay-silage harvesting methods. By Frank Hamlin. Power and Machinery round table, North Atlantic Section, American society of agricultural engineers, Toronto, Canada, Oct. 12, 1937. 5p. Mimeographed.

Hay. (Cont'd)

Spontaneous heating and ignition of hay. By Harry E. Roethe.  
Agricultural Engineering. v. 18, no. 12. December, 1937. p.547-550, 554.

Hay Storage.

Storing hay in ventilated mows. By Harry E. Roethe. Hoard's Dairyman.  
v. 82, no. 19. October 10, 1937. p. 542.

Heating.

Electric heat for laying houses. By Hobart Beresford, Jefferson B. Rodgers and C.E. Lampman. C.R.E.A. News Letter. no. 16. November, 1937. p. 18-24.

Heating - systems applications. Domestic Engineering. v. 150, no.6. December, 1937. p. 54-56. Two systems of heating were figured for model house. Article tells results.

Hot water. Domestic Engineering. v. 150, no. 5. November, 1937. p. 77-79, 168-171. Article tells how and why domestic hot water systems function according to basic principles.

New chart for comparing fuel costs. By Paul D. Close. Heating and Ventilating. v. 34, no. 10. October, 1937. p. 62-64. Which is the more costly: Coal at \$10 per ton or oil at 7 cents per gal.? How do these compare with manufactured gas at 60 cents per thousand cubic feet? Questions of this character are being asked every day. This article and the chart which appears with it have been prepared to give you a quick answer to these questions. The chart is unusual in that it makes it easy to visualize the comparative costs of various fuels.

Oil heating handbook. 2d ed. revised and enlarged. By H.A. Kunitz. Philadelphia, J.B. Lippincott company, 1937. 464p.

Study of methods of control and types of registers as affecting temperature variations in the research residence. By A.P. Kratz and S. Kenzo. Heating, Piping and Air Conditioning. v. 9, no. 12. December, 1937. p. 745-757.

"Whys" of automatic heating. Domestic Engineering. v. 150, no. 5. November, 1937. p. 71-73, 166-168. Oil burning, stoker firing and gas firing fundamentals are presented here in discussion of automatic heating equipment.

Houses.

Low cost house developed by Forest Service. Engineering News-Record. v. 119, no. 27. December 30, 1937. p. 1038. Frameless wooden house which can be built for cost of \$2,000 to \$3,000 has been developed after about two years of investigation by Forest Products Laboratory of



## Houses. (Cont'd)

U.S. Forest Service, and is now undergoing final test. House is built of prefabricated plywood panels made by gluing sheets of plywood to both sides of light interior framework. Panels will be room-size wall, floor, and roof sections 4 feet wide, designed on stressed-covering principle under which the plywood carries some part of the load. Phenolic-resin-bonded plywood is used in panels. Wall panels are 3 inches in thickness and packed with insulation. Floor panels are 6 inches thick. Special barriers prevent accumulation of moisture within exterior walls, and high degree of fire resistance has been achieved. Windows and doors are built into panels so that they can be located where desired. Electrical and plumbing lines are incorporated in panels and connections are made at time panels are being put together. This type of prefabricated wooden house can be put up in a few days, according to George W. Trayer, chief of Division of Forest Products Research. House can have one or two stories, flat or pitched roof, and may be set over a cellar or on another foundation.

Selected references on ready-cut houses, house plans, farm buildings, log cabins, wayside stands, summer camps and cottages. Washington, D.C., 1937. 9p. Mimeographed. Department of Commerce. Bureau of Foreign and Domestic Commerce. Forest Products Division.

Storage spaces in the kitchen. By Edna M. Cobb. Orono, Maine, 1937. 12p. University of Maine. College of agriculture. Bulletin no. 242.

## Houses, Remodeling.

Modernizing the farm home. Seattle, Washington, 1937. 6p. West Coast Lumbermen's Association. Radio talk no. 11. Mimeographed.

## Hydrology.

Bibliography of hydrology United States of America for the years 1935 and 1936. (Wash. D.C.) American Geophysical Union, Section of Hydrology, 1937. 78p.

## Insect Control.

Insect electrocution and bait-pan traps! What about them? By T.H. Parks. Agricultural Leaders' Digest. v. 18, no. 7. October, 1937. p. 13-14. Interesting facts revealed by liquid bait and trap lights are: 1. Migrating insects are caught principally at night in both liquid bait and light traps. 2. Almost unbelievable numbers of certain species are in flight during some nights. 3. Many insects fly high above earth, and travel long distances in direction of prevailing wind. 4. Light and bait traps are of questionable value for their economic performance in trapping and reducing number of injurious insects. 5. Both types of traps, but especially light traps, catch and kill many beneficial and harmless insects.

## Insulation.

Cool or warm inside. By A.M. Peters. Capper's Farmer. v. 48, no. 12. December, 1937. p. 7.

Insulation. (Cont'd)

Insulation - materials and applications - II. By E.L. Doty.  
Electric Journal. v. 34, no. 12. December, 1937. p. 489-492.

Save fuel this winter. Wisconsin Agriculturist and Farmer. v. 64,  
no. 23. November 6, 1937. p. 20.

Irrigation.

Irrigated cotton areas of America. International Cotton Bulletin.  
v. 16, no. 61. Oct. Nov. 1937. p. 54-108. At present time there  
are 38 irrigation projects in United States of which only four are  
situated within Cotton Belt. These are: Salt River Project in  
Arizona, Yuma Project in Arizona-California, Rio-Grande project in  
New Mexico-Texas, and Carlsbad project in New Mexico. All American  
Canal, and the Central Valley water project, California, are under  
construction. Besides these federal irrigation schemes, there are  
several private enterprises in New Mexico on Pecos River at Roswell  
and around Brownsville, Texas.

Irrigation by sprinkling. By J.E. Christiansen. Agricultural Engineer-  
ing. v. 18, no. 12. December, 1937. p. 533-538. Division of  
irrigation investigations and practice of University of California  
began a study of sprinkling with portable systems in 1932. This study  
has five principal objectives: 1. To determine uniformity of distri-  
bution of water from rotating sprinklers, and especially to determine  
effect of wind, pressure, speed of rotation, and spacing of sprinklers  
upon resulting distribution. 2. To determine loss of water by evapora-  
tion. 3. To determine hydraulic characteristics of sprinkler systems,  
and to prepare tables and graphs from which friction losses in sprink-  
ler lines could be readily ascertained. Such graphs are necessary to  
determine proper sizes and combinations of pipe and sprinkler nozzles.  
4. To determine cost of applying water by sprinkling. 5. To determine  
general success of sprinkling as method of irrigation. Studies in-  
dicate that portable sprinkler systems have generally proved satis-  
factory in areas with high water table, and in some places near coast  
where the seasonal water requirement is low. They are satisfactory for  
irrigating spring crops, such as peas, that require only one or two  
light applications in addition to normal winter rainfall. They are  
especially well adapted to land of irregular topography that is diffi-  
cult to irrigate by surface methods, and for shallow or coarse-textured  
soils of low water-yielding capacity that require light application  
at frequent intervals. Sprinkling is method that is generally satis-  
factory for special conditions where surface irrigation is not feasible  
or practical. It is limited principally by cost, which for most condi-  
tions is higher than for surface methods of irrigation.

Irrigation water reclaimed from sewage. By Harry N. Jenks. Municipal  
Sanitation. v. 8, no. 11. November, 1937. p. 574-576.

New irrigation projects. Montana Farmer. v. 25, no. 6. November 15,  
1937. p. 6, 31. Summary of larger projects: projects completed with  
PWA funds. 1. Willow Creek project. 2. North Fork of Smith River



## Irrigation. (Cont'd)

project. 3. Park Branch Canal project. 4. Livingston Ditch project. 5. Red Lodge Rock Creek project. Projects still under construction in conjunction with the FWA: 1. Ruby River project. 2. Flint Creek project. 3. Ackley Lake project. 4. Big Dry project. Projects for which FWA has allocated funds, but not yet under construction. 1. Nevada Creek project. 2. Upper Musselshell project. 3. Columbus Irrigation project. 4. West Fork of Bitter Root. 5. Tongue River project. 6. Sidney Pumping project. Projects in connection with Soil Conservation Service: 1. Yellow Water project. 2. Winnett Irrigation project. Projects in connection with Works Progress Administration: 1. Deadman's Basin project. 2. Valentine project. 3. East Fork of Poplar River. 4. West fork of Poplar River. 5. Lewistown Ditch project. 6. Kinsey Irrigation project. Projects built by State Water Conservation Board from State funds: 1. Red Horse project. 2. Thebee Lake project. 3. Camp Creek project. 4. Teton Cooperative Canal project.

Overhead irrigation for cotton. By Henry J. Beckman. New Agriculture v. 20, no. 2. November, 1937. p. 8.

Overhead irrigation in California. Market Growers Journal. v. 61, no. 12. December 15, 1937. p. 517.

Problems peculiar to irrigation farming. By O.W. Israelsen. Reclamation Era. v. 27, no. 12. December, 1937. p. 286-288. Storage problem. Water carriers. Variable soil moisture. Water-right controversies.

Security in irrigation. Kansas Farmer. v. 74, no. 16. September 25, 1937. p. 1, 17. Arkansas Valley finds pumping equipment a sound investment in growing alfalfa, beets and milo.

Water for North Loup Valley farmers. Nebraska Farmer. v. 79, no. 24. December 4, 1937. p. 424. North Loup project will be able to service 48,000 acres - 66 miles up and down the valley from Taylor to Scotia. Another project - the Middle Loup - will serve much larger area, with operations centered at Arcadia. North Loup is a three-canal affair. Head gates at Taylor will feed into 35-mile canal along west side of river to Ord; head gates at Burwell open into 25½ mile canal along east side to Sumpter; the Ord head gates (first completed) shoot water into a 16½-mile canal along west side of river. Today approximately 400 farms are under contract to irrigate 25,000 acres.

## Land Utilization.

Land classification in West Virginia based on use and agricultural value. By G.G. Pohlman. Morgantown, West Virginia, 1937. 31p. West Virginia University. Bulletin 284. Maps. Bulletin 285.

Land Utilization. (Cont'd)

New land-use program. By Henry A. Wallace. Agricultural Situation. v. 21, no. 11. November 1, 1937. p. 12-13. General use to which land is to be put, and selection of agency to administer it will be determined, so far as practicable, before land is bought. All possible help also will be given families residing on land purchased to find new opportunities elsewhere. They will be helped to relocate good lands. As far as funds permit, necessary debt adjustment, rehabilitation, and related assistance will be provided.

Rural zoning improves land use in Wisconsin. By V. Webster Johnson. Soil Conservation. v. 3, no. 5. November, 1937. p. 138-143.

Semi-official land utilization and soil conservation agencies in the Netherlands. By Jan van der Vate. Land Policy Circular. November, 1937. p. 20-24.

Lighting.

Scientific basis of illuminating engineering. By Parry Moon. 1st ed. New York, McGraw-Hill book company, inc., 1936. 608p.

Try light conditioning and see for yourself. By Helen G. Toland. Electrical Ruralist. v. 1, no. 7. November, 1937. p. 4-5, 23. Light conditioning means providing the right amount and the right kind of light for comfortable and efficient seeing.

Lubrication.

Theory of lubrication. By Mayo Dyer Hersey. New York, John Wiley and sons, inc., 1936. 152p.

Miscellaneous.

Annual report of the Department of the Interior for the fiscal year ending June 30, 1937. Washington, U.S. Govt. print. off., 1937. 191p. U.S. Bureau of Reclamation, p. 1-33.

Annual report of the Federal Trade Commission for the fiscal year ended June 30, 1937. Washington, U.S. Govt. print. off., 1937. 174p. Farm implements and machinery, p. 29-31.

Educational directory 1937. Washington, U.S. Govt. print. off., 1937. 69p. United States Department of the Interior. Office of Education. Bulletin 1937, no. 1.

List of publications with abstracts. Horton hydrologic laboratory, Voorheesville, N.Y. Ann Arbor, Michigan, Edwards brothers, inc., 1937. 37p. Publication 112.

Middle ground in our economic system. By Floyd L. Carlisle. Edison Electric Institute Bulletin. v. 5, no. 12. December, 1937. p. 481-482. Plea for cooperation between government, industry, agriculture and labor.



Miscellaneous. (Cont'd)

Proceedings of Western States Regional Extension Conference held at Spokane, Washington, May 24-27, 1937. n.p. 1937. 323p.

Some problems involved in establishing milk prices. By E.W. Gaumnitz and O.M. Reed. Washington, U.S. Govt. print. off., 1937. 227p. United States Department of Agriculture. Agricultural adjustment administration. Division of Marketing and Marketing agreements--Dairy section. Marketing information series DM-2.

Survey of milk marketing in Milwaukee. Washington, U.S. Govt. print. off., 1937. 119p. United States Department of Agriculture. Agricultural Adjustment Administration. Division of Marketing and Marketing agreements--Dairy Section. Marketing information series DM-1.

Mississippi River.

Stages of the Mississippi river and of its principal tributaries for 1935. Vicksburg, Mississippi river commission, 1937. 114p.

Models.

Dynamic properties of structures determined by models. By R.K. Bernhard. Mechanical Engineering. v. 59, no. 10. October, 1937. p. 763-765.

Motor Fuel.

A.S.A.E. discusses tractor fuels and tire sizes. Implement & Tractor. v. 52, no. 25. December 11, 1937. p. 16-17, 40, 42.

Characteristics of tractor fuels. By J.B. Torrance. St. Paul, Minn., 1937. 1p. University of Minnesota. Agricultural extension division. Agricultural Engineering News Letter. no. 69.

High altitude pistons and fuel consumption. By W. Kalbfleisch. Paper presented before the North Atlantic Section, American society of agricultural engineers, Toronto, Canada, October 12, 1937. 3p. Mimeographed.

Tractor fuel problem. By M.D. Gjerde. National Petroleum News. v. 29, no. 30. July 28, 1937. p. 25-26, 28. Characteristics of various types of tractor fuels, including diesel fuels, now in general use are discussed. Existing need for greater distribution of high octane fuel of controlled uniformity made specifically for use in low compression carbureted engines. Assurance of general supply of such tractor fuel, author points out, would enable tractor manufacturer to improve design of his dual-fuel engines by increase in compression pressures which would result in higher efficiency for these engines with use of gasoline as well as with heavy fuel. Types of various petroleum products aside from so-called "tractor fuel" that are used for this purpose are evaluated. Large investment required to stock different tractor fuels necessitates standardization on single grade.

Motor Fuel. (Cont'd)

Tractor fuels and how to use them. Northwest Farm Equipment Journal.  
v. 51, no. 12. December, 1937. p. 46.

Motors, Electric

Control of electric motors. By Paisley B. Harwood. New York, John Wiley & Sons, Inc., 1936. 390p.

Electric motors for air conditioning applications. By J.A. Rodgers. Heating & Ventilating. v. 34, no. 9. September, 1937. p. 48-51. Selection of the proper electric motor for driving a fan or compressor is frequent problem of air conditioning contractor and engineer. Article will be of great assistance in solving such problems. Among subjects discussed are application of motors to air moving and gas compression equipment, characteristics of various types of motors, changes in power requirements with changes in fan speeds, radio interference, cycling of refrigeration compressors and motor production.

Put a motor on that corn sheller. By Charles V. Thayer. Electricity on the Farm. v. 10, no. 10. October, 1937. p. 14, 33.

Orchard Heaters.

Systems for distributing fuel oil to orchard heaters. By F.A. Brooks. Agricultural Engineering. v. 18, no. 12. December, 1937. p. 541-543.

Pest Control.

New rat trap and how to lay it. By Leodegario E. Hechero. Philippine Journal of Agriculture. v. 8, no. 3. Third quarter, 1937. p. 341-347. General feature of this trap is based upon principle of pitfall trap construction

Rat surveys and rat proofing. By B.E. Holsendorf. American Journal of Public Health. v. 27, no. 9. September, 1937. p. 883-888.

Pipes and Piping.

Grinnell prefabricated piping data book. 4th ed. Providence, Rhode Island, Grinnell company, inc., 1937. 76p.

Poultry Houses and Equipment.

Eggs and their care. Poultry council of the State college of Washington. Pullman, Washington, 1937. 7p. State college of Washington. Extension service. Poultry pointers. no. 29.

Public Health.

Sanitary code of West Virginia, revised 1938. Charleston, W.Va., Rose City press, 1938. 61p.



### Pumps and Pumping.

Electric pumping for irrigation. 1898 first motor installation for farm use? Electricity on the Farm. v. 11, no. 1. January, 1938. p. 17.

### Refrigeration.

Development of "Freon" (F.12) refrigeration, Cold Storage and Air-Conditioning. v. 8, no. 4. July 31, 1937. p. 19-21.

Electric refrigeration lowers farm costs. Detroit, Michigan. Kelvinator Division, Nash Kelvinator Corporation, 1937. 2p. New equipment for nation's dairies will bring great savings. Mimeographed.

Experimental Refrigeration Institute planned for Argentina. Ice and Refrigeration. v. 93, no. 4. October, 1937. p. 275.

Field of food technology. Address of Dr. Samuel C. Prescott. Refrigerating Engineering. v. 34, no. 5. November, 1937. p. 287-288. Growing insistence of consumer on foods of first quality, and rapid progress in methods of food freezing, quick freezing, refrigerated storage and transport, remind refrigeration men that this is largest use of their science and indicate that closer cooperation with food chemists and bacteriologists will be inevitable in future.

Freezing preservation of fruits and vegetables. By J.A. Berry. Ice and Refrigeration. v. 93, no. 4. October, 1937. p. 286-288. Discussion of development of frozen pack, its present state of development and probable future expansion. All food preservation must rest on scientific foundations. Calls for practical knowledge of "safe" temperatures.

Preservation of fruits and vegetables by freezing. By R.W. Arengo Jones. Ottawa, Canada, 1937. 12p. Dominion of Canada. Department of agriculture. Technical bulletin no. 12.

### Refrigerator Cars.

Improving the refrigerator car. By O.C. Walker. Ice and Refrigeration. v. 94, no. 1. January, 1938. p. 2-5. Water ice still given first place as media by which refrigeration in transit is most economically and efficiently produced. Canadian Pacific Railway makes detailed test runs of refrigerator cars using ice, practical use of dry-ice as auxiliary to water ice and salt.

### Refrigerator Lockers.

Cold storage lockers for farmers. By Richard Crabb. The Nation's Agriculture. v. 12, no. 12. November, 1937. p. 6, 10-11.

Farm refrigerated storages. By Earl L. Arnold. Agricultural Engineering. v. 18, no. 12. December, 1937. p. 551-554.



Refrigerator Lockers. (Cont'd)

New storage idea. By J.H. Frandsen. New England Homestead. v. 110, no. 26. December 18, 1937. p. 5, 7. Refrigerated locker plants for farm preservation are increasing in popularity.

Research.

Fundamental research and its human value. By Irving Langmuir. General Electric Review. v. 40, no. 12. December, 1937. p. 569-573.

Reservoirs.

Storage reservoirs. By George Bransby Williams. London. Chapman & Hall, ltd., 1937. 293p.

Roofs.

New roofs for old buildings. Seattle, Washington, 1937. 6p. West Coast Lumberman's Association. Information department. Radio talk no. 12. Mimeographed.

Silos.

Trench silo. By A.J. Bell. East Lansing, Michigan. 1938. 7 p. Michigan state college. Extension division. Bulletin 188.

Trench silo - its construction. Farm and Ranch. v. 56, no. 17. September 1, 1937. p. 20-21, 34.

Silt.

Advance report on the sedimentation survey of Ottawa county state lake, Bennington, Kansas, March 23 to April 13, 1937. By Elliott M. Flaxman and Leland H. Barnes. In cooperation with Kansas agricultural experiment station. Washington, D.C. United States Department of Agriculture. Soil conservation, 1937. 10p. Mimeographed.

Consideration of silt in design and maintenance of open earthen channels. By Radha Krishna Khanna. ~~Indiana~~ Engineering. v. 102, no. 5. November, 1937. p. 169-170. *Indian*

Laboratory investigation of flume traction and transportation. By Y.L. Chang. Proceedings of American Society of Civil Engineers. v. 63, no. 9. November, 1937. p. 1701-1739. Describes laboratory investigation of problem of flume traction and transportation. Authoritative literature on subject is also reviewed. Although experiments are not - and cannot be expected to be - of high accuracy obtainable in some classes of laboratory work it is hoped that results, when suitably corrected and refined, will provide close guide to scientific conclusion. Subject is presented under three main headings: Part I is concerned principally with tractive force required to cause initial movement of debris; laboratory investigation by writer is described in detail, equation for critical tractive force is presented, and



### Silt. (Cont'd)

results obtained by other investigators are tabulated and shown to conform generally to same equation. Part II deals with laws of transportation by traction, and Part III, with laws of transportation by suspension. In each case writer's experiments are reviewed briefly, while major part of presentation consists of theoretical analyses and discussion of work of other experimenters. Formulas are suggested for making rough estimates of traction load and suspended load in either natural streams or regularly shaped channels. Nomenclature is summarized in Appendix.

### Soil Heating.

Electrical heating for horticultural purposes. By C.A. Cameron Brown. Journal of the Ministry of Agriculture. v. 44, no. 6. September, 1937. p. 552-561. Use of electricity for horticultural heating is technically sound, and it may be adopted with considerable confidence in trouble-free running for period of five years, and even at end of that time only part of installation is at all likely to be faulty. At same time it must be realized that electricity is high-class medium of energy-transfer, and is only economic where certain favorable conditions exist. Its use should never be embarked on lavishly without careful planning, for which plenty of competent advice is now available. It is primarily the medium for affording man in small way of business or working single-handed that freedom from much of tedious and hard work that man employing labor is able to avoid. Particularly, the, nurseryman or market gardener so placed would do well to consider at least, but to consider in light of informed and experienced opinion, possibility of electricity being economically available to him.

Pushing up profits with soil heating cable. By Earl Burke. Electricity on the Farm. v. 10, no. 11. November, 1937. p. 7-9.

Soil heating. By N.E. Macpherson. The Bulletin. (Hydro-Electric Power Commission of Ontario.) v. 24, no. 11. November, 1937. p. 368-371. Paper presented before the Convention of the North Atlantic Section of the American Society of Agricultural Engineers at Toronto, October 12, 13 and 14, 1937.

Soil heating. By N.E. Macpherson. North Atlantic Section of the American society of agricultural engineers. Convention at Toronto, Ontario, October 12, 13 and 14, 1937. 6 p.

### Sorghums.

Harvesting and utilizing sorghums. Lincoln, Neb., 1937. 5p.  
Nebraska cooperative extension work in agriculture and home economics. Extension circular 106. Mimeographed.

### Storage of Fruits and Vegetables.

Different methods employed in technique of fruit storage. Monthly Bulletin of Agricultural Science and Practice. v. 28, no. 11.



Storage of Fruits and Vegetables. (Cont'd)

November, 1937. p. 423-433. Utilization of borax. Utilization of volatile substances, iodine in particular.

Effect of high storage temperature upon fullgrown seed Irish potatoes. By Julian C. Miller, W.D. Kimbrough and J.G. Richard. American Potato Journal. v. 14, no. 11. November, 1937. p. 362-364.

Storage of apples in England. By Frank H. Slade. Refrigerating Engineering v. 35, no. 1. January, 1938. p. 25-27, 58, 60.

Surveying.

Triangulation in Utah (1937 Datum). By Henry G. Avers. Washington, U.S. Govt. print. off., 1937. 165p. U.S. Department of Commerce. Coast and Geodetic Survey. Special Publication no. 209.

Terracing.

Terracing extension methods in Alabama. By J.B. Wilson. Agricultural Engineering. v. 18, no. 12. December, 1937. p. 539-540.

Thermometers.

Gas-actuated dial thermometers. By E.H. Hammond. Power. v. 81, no. 12. November, 1937. p. 66-68. Describes construction, characteristics and applications.

Tires.

Determination of variation in unit pressure over contact area of tires. By Division of Tests, Bureau of Public Roads. Public Roads. v. 18, no. 10. December, 1937. p. 195-198.

Rating tractor tires for performance. By J.W. Shields. Implement Record. v. 35, no. 1. January, 1938. p. 24-25. In trying to arrive at some logical method to follow in choosing proper tire equipment for tractors lay out following program. 1. Tires should provide traction to handle, without excessive slippage, full power of engine when it is operating in plow gear in average soil. 2. Average soil is considered as moist loam or other soil with coefficient of traction of .5. For other than average soils oversize or special tires should be used. 3. From horsepower of engine compute expected draw-bar pull in plow gear - making allowance for losses due to gears and rolling resistance. 4. Provide sufficient weight on tires to give desired drawbar pull. 5. Choose tire with carrying capacity for required load.

Selecting the right tire size. Farm Implement News. v. 58, no. 25. December 16, 1937. p. 28. Chart.